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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,908	09/23/2004	Erik A.T. Trommelen	TS0777/US	9882
30522	7590	12/14/2005	EXAMINER	
KRATON POLYMERS U.S. LLC WESTHOLLOW TECHNOLOGY CENTER 3333 HIGHWAY 6 SOUTH HOUSTON, TX 77082			WU, IVES J	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/508,908	Applicant(s) TROMMELEN ET AL.	
	Examiner Ives Wu	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent-term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 14, 17-23, 25 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 14, 17-23, 25 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

(1). Applicant's Remarks and Amendments filed on October 31, 2005 has been received and fully acknowledged with the following results.

Claims 13, 15, 16, 24 and 26 are cancelled. The total cancelled claims are 1-11, 13, 15-16, 24 and 26. Claims 12, 23 and 25 are amended. Claim 27 is newly added.

The rejections for claims 12-26 in the prior Office Action dated July 27, 2005 are modified according to the Amendments filed on October 31, 2005 together with the rejection for new claim 27 presented in the following paragraphs.

Claim Rejections - 35 USC § 103

(2). The text of those sections of Title 35, U. S. Code not included in this section can be found in a prior Office Action dated July 27, 2005.

(3). As to bituminous composition comprising a bituminous component and a block copolymer in the **independent claim 12**, Vonk et al disclose the **bituminous composition** suitably in roofing coating, comprising a bitumen, at least one elastomeric, optionally hydrogenated, block copolymer of an alkenyl arena and a conjugated diene, and a polymer of a monoalkenyl arena, Col. 1, line 8-12.

As to the block copolymer comprising at least two blocks of a conjugated diene and at least two blocks of a monovinylaromatic hydrocarbon of the general formula: $S_1 - B_1 - S_2 - B_2$ in **independent claim 12**, Vonk et al disclose the additional A and/or B blocks may be

Art Unit: 1713

alternatively grown via sequential addition of the respective monomer to produce a linear polymer, e.g., A-B-A, A-B-A-B, etc, Col. 4, line 1-4.

As to the weight average molecular weight of monovinylaromatic hydrocarbon in the block copolymer ranging from 12,000 to 40,000 and its content in the range from 10 to 35 wt% of the block copolymer in **independent claim 12**, Vonk et al disclose the polymeric blocks A preferably have number average molecular weights of 5,000 to 50,000. It is preferred that the proportion of the polymeric blocks A in the block copolymer lies in the range of 10 to 60 wt%, Col. 2, line 34-40.

As to the S₁ and S₂ blocks comprising at least 99 mol% of styrene in the **independent claim 12**, Vonk et al disclose the polymer block A being predominantly a polymerized alkenyl arena block, Col. 1, line 36-37; The A blocks are preferably monoalkenyl arena, Col. 2, line 6-7; The preferred monoalkenyl arena styrene particularly, Col. 2, line 16-19; It will be understood that both blocks A and B may be either homopolymer, random or tapered copolymer blocks as long as each block predominates in at least one class of the monomers characterizing the blocks defined herein. For example, blocks A may comprise styrene/alpha-methylstyrene copolymer blocks, Col. 1, line 66 - Col. 2, line 3. The A blocks of patentee will contain at least 99 mol% of styrene if block A of patentee is homopolymer of styrene.

As to the limitation of (1) the apparent molecular weight of B₁ to be 180,000 to 400,000, B₂ to be 15,000 to 60,000; and (2) both conjugated diene blocks comprising at least 50 mol% of isoprene in **independent claim 12**, Vonk et al disclose that the polydiene block (or blocks) B has (have) preferably a number average molecular weight of 15,000 to 350,000, (Col. 2, line 51-54)

Art Unit: 1713

which includes or overlaps the molecular weight limitations. Moreover, Vonk et al also disclose that the blocks B may comprise homopolymers of conjugated diene monomers, copolymers of two or more conjugated dienes, Col. 2, line 20-22; The preferred conjugated dienes are butadiene and isoprene, Col. 2, line 32-34. The conjugated diene blocks of patentee will have more than 50 mol% of isoprene as the B block is homopolymer of isoprene.

As to the B₁ and B₂ blocks comprising at least 80 mol% isoprene in the independent claim 12, Vonk et al disclose the block B may comprise homopolymer of conjugated diene monomers, or copolymer of two or more conjugated diene monomers, Col. 2, line 20-22. The polydiene blocks of patentee will contains at least 80 mole% of isoprene when the isoprene is selected to predominate the block (Col. 1, line 39-41).

Vonk et al **does not disclose** the weight ratio of conjugated diene block B₁ over B₂ ranging from 3.0 to 12.0.

Agostinis et al **disclose** the weight ratio for two polydienic blocks in a relation so that weight of one polydienic block will be weight of the other polydienic block times a value from 0.1 to 0.5, Abstract, line 15-20. In other words, the weight ratio for two polydienic block is ranged from **2.0 to 10.0**.

The advantage of using block copolymer consisting of linear alternating polydienic and polyvinylaromatic blocks, having a particular structure and distribution of the individual blocks is that enable an unexpectedly good balance of characteristics between mechanical characteristics and thermooxidation resistance, Col. 1, line 5-50, Col. 2, line 1-9, of Agostinis et al (US004874821).

The advantages of using copolymer of butadiene/isoprene as polydienic block is described as same advantages, or similar advantages, are achieved, when butadiene is replaced by other dienic monomers, Col. 2, line 57-61 of Agostinis et al (US004874821).

It would have been obvious at time of applicant's invention to include weight ratio of two types of polydienic blocks of Agostinis et al in the block copolymer of the Bituminous mixture disclosed by Vonk et al because it will achieve the aforementioned advantages.

As to limitation of **dependent claim 14**, Vonk et al disclose the block B may comprise homopolymer of conjugated diene monomers, or copolymer of two or more conjugated diene monomers, Col. 2, line 20-22. The polydiene blocks of patentee will contains at least 99 mole% of isoprene when the isoprene is selected to predominate the block (Col. 1, line 39-41).

Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vonk et al (US004904713) in view of Agostinis et al (US004874821) for the same rationale in the prior Office Action dated July 27, 2005.

(4). As to the limitation of block copolymer in **independent claim 23**, the disclosure of Vonk et al and Agostinis et al are incorporated herein by reference. The most subject matter of block copolymer composition in the applicant's claim 23 has been recited in applicant's claim 12 and has been discussed in paragraph (3).

(5). As to the limitation of **independent claim 25**, the disclosure of Vonk et al and Agostinis et al is incorporated herein by reference, the most subject matters of bituminous composition in

Art Unit: 1713

the applicant's claim 25 has been recited in the applicant's claim 12, and has been discussed in the paragraph (3).

As to the coating application in the **independent claim 25**, Vonk et al disclose the bituminous composition especially suitable in roofing coatings, Col. 1, line 8-9.

As to the limitation of **dependent claim 27**, the disclosure of Vonk et al and Agostinis et al is incorporated herein by reference, the most subject matters of the polymer blocks in bituminous composition: B₁ and B₂ comprising 99 mol% isoprene independently, weight ratio W to be 4.0 to 8.0, polymer block B₁ having an apparent molecular weight of from 250,000 to 350,000, polymer blocks S₁ and S₂ having a molecular weight of from 20,000 to 35,000 independently has been recited in a broader scope in the applicant's claim 12, and has been discussed in the paragraph (3).

Response to Arguments

(6). Applicant's arguments filed on October 31, 2005 have been fully considered but they are not persuasive.

(7). In regards to the 1st issue of polydienic blocks of Agostinis's et al broad disclosure not having specific examples for isoprene, it is well known that isoprene is a diene polymer. The disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

(8). In regards to the 2nd issue that the adhesive composition of Agostinis et al may not working well for other applications such as bituminous composition for roofing application, Agostinis et al disclose that these block copolymers widely used in the technique such as in the

Art Unit: 1713

compositions with bitumens (Col. 1, line 26-28) are improved by the block copolymer of Agostinis et al endowed with a desired balance of mechanical characteristics, rheological characteristics, and characteristics of resistance to thermooxidation (Col. 1, line 1-5).

(9). In regards to the 3rd issue that the process of Agostinis et al only exemplifies the polybutadiene and not pure in the beginning A₁ – B₁ - blocks, however, Agostinis et al disclose that the ratio between the molecular weights of various blocks, B₁ and A₁ are assume to be pure blocks, B₁ and B₂ blocks, of the copolymers of patentee's invention are the same advantages, or similar advantages, are achieved, when butadiene is replaced by other dienic monomers (Col. 2, line 51-61), the disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1713

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245. The examiner can normally be reached on 8:00 - 5:00.

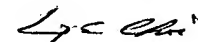
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu

Art Unit: 1713

Date: December 12, 2005



JING-SUI CHOI
PRIMARY EXAMINER